The Sourdough Framework

How to master making bread at home
- the bread code community book -

Hendrik Kleinwächter

March 19, 2022

Contents

| Fo | rewo | ord | V | | | | | |
|--------------|----------------------------|----------------------------------|-----|--|--|--|--|--|
| Ρı | refac | e | vii | | | | | |
| \mathbf{A} | ckno | wledgements | ix | | | | | |
| 1 | The | e history of sourdough | 1 | | | | | |
| | 1.1 | Sourdough bread in ancient times | . 1 | | | | | |
| | 1.2 | How modern bread is made | . 1 | | | | | |
| | 1.3 | Sourdough in modern times | . 1 | | | | | |
| 2 | How sourdough works | | | | | | | |
| | 2.1 | Enzymatic reactions | . 3 | | | | | |
| | 2.2 | Yeast | . 3 | | | | | |
| | 2.3 | Lactic acid bacteria | . 3 | | | | | |
| | 2.4 | Acetic acid bacteria | . 3 | | | | | |
| 3 | Making a sourdough starter | | | | | | | |
| | 3.1 | Baker's math | . 5 | | | | | |
| | 3.2 | The process of making a starter | . 5 | | | | | |
| | 3.3 | How flour is fermented | . 5 | | | | | |
| | 3.4 | Determining starter readiness | . 5 | | | | | |
| | 3.5 | Maintenance | . 5 | | | | | |
| | 3.6 | Longterm starter storage | . 5 | | | | | |
| 4 | Sourdough starter types | | | | | | | |
| | 4.1 | The regular starter | . 7 | | | | | |
| | 4.2 | Stiff starter | . 7 | | | | | |
| | 4.3 | Liquid starter | . 7 | | | | | |
| | 4.4 | Lievito madre | . 7 | | | | | |

ii *CONTENTS*

| 5 | Flou | ir types | G | | | | | | | | |
|----|--------------------------|--------------------------------|---|--|--|--|--|--|--|--|--|
| | 5.1 | Wheat like | Ĉ | | | | | | | | |
| | 5.2 | Non gluten binding | Ĉ | | | | | | | | |
| | 5.3 | Gluten free | G | | | | | | | | |
| | 5.4 | Blending flours | S | | | | | | | | |
| 6 | Bread types 11 | | | | | | | | | | |
| | 6.1 | Wheat bread basics | 1 | | | | | | | | |
| | 6.2 | Non wheat bread basics | 1 | | | | | | | | |
| | 6.3 | The simplest way to make bread | 1 | | | | | | | | |
| 7 | Who | eat sourdough 1 | 3 | | | | | | | | |
| | 7.1 | The process | 3 | | | | | | | | |
| | 7.2 | Readying your starter | 3 | | | | | | | | |
| | 7.3 | Ingredients | 3 | | | | | | | | |
| | 7.4 | Hydration | 3 | | | | | | | | |
| | 7.5 | Autolyse | 3 | | | | | | | | |
| | 7.6 | Fermentolyse | 3 | | | | | | | | |
| | 7.7 | Dough strength | 3 | | | | | | | | |
| | 7.8 | Controlling fermentation | 3 | | | | | | | | |
| | 7.9 | Optional Preshaping | 3 | | | | | | | | |
| | 7.10 | Shaping | 3 | | | | | | | | |
| | 7.11 | Proofing | 3 | | | | | | | | |
| 8 | Non wheat bread basics 1 | | | | | | | | | | |
| | 8.1 | Ingredients | 5 | | | | | | | | |
| | 8.2 | Managing acidity | 5 | | | | | | | | |
| | 8.3 | To shape or not to shape | 5 | | | | | | | | |
| | 8.4 | Proofing | - | | | | | | | | |
| 9 | Baking 1 | | | | | | | | | | |
| | 9.1 | The role of steam | 7 | | | | | | | | |
| | 9.2 | Temperature | 7 | | | | | | | | |
| | 9.3 | Home oven setup | 7 | | | | | | | | |
| | 9.4 | Dutch ovens | | | | | | | | | |
| 10 | Stor | ring bread 1 | 9 | | | | | | | | |
| | | Fridge | | | | | | | | | |
| | | Room temperature | | | | | | | | | |
| | | Frozen | | | | | | | | | |

| | ••• |
|-----------------|-----|
| ('C)N/T'E:N/T'S | 111 |
| CONTENTS | 111 |
| | |

| 1 | Trou | ıbleshooting | | | | | | |
|---|------|--|--|--|--|--|--|--|
| | 11.1 | Debugging your crumb structure | | | | | | |
| | 11.2 | Baking in the tropics | | | | | | |
| | 11.3 | My bread stays flat | | | | | | |
| | 11.4 | I want more tang in my bread | | | | | | |
| | 11.5 | My bread is too sour | | | | | | |
| | 11.6 | Fixing a moldy sourdough starter | | | | | | |
| | 11.7 | My bread flattens out after shaping | | | | | | |
| | 11.8 | Liquid on top of my starter | | | | | | |
| | 11.9 | Why does my starter smell like acetone | | | | | | |

iv CONTENTS

Foreword

Still need someone to write a foreword

Preface

If there is the one food from Germany it is probably bread. There are thousands of different varieties of bread in Germany. Making bread has been an integral part of our culture. Beginning my studies in Göttingen for the first time I was faced with buying bread on my own. In Germany that is no easy task as the varieties of bread are endless. I started to check the packaging of different bread types and noticed how there were surprisingly many ingredients in most of the breads found in a common supermarket.

Acknowledgements

This book would not have been possible without the help of the community.

The history of sourdough

- 1.1 Sourdough bread in ancient times
- 1.2 How modern bread is made
- 1.3 Sourdough in modern times

How sourdough works

- 2.1 Enzymatic reactions
- 2.2 Yeast
- 2.3 Lactic acid bacteria
- 2.4 Acetic acid bacteria

Making a sourdough starter

- 3.1 Baker's math
- 3.2 The process of making a starter
- 3.3 How flour is fermented
- 3.4 Determining starter readiness
- 3.5 Maintenance
- 3.6 Longterm starter storage

Sourdough starter types

- 4.1 The regular starter
- 4.2 Stiff starter
- 4.3 Liquid starter
- 4.4 Lievito madre

Flour types

- 5.1 Wheat like
- 5.2 Non gluten binding
- 5.3 Gluten free
- 5.4 Blending flours

Bread types

- 6.1 Wheat bread basics
- 6.2 Non wheat bread basics
- 6.3 The simplest way to make bread

Wheat sourdough

- 7.1 The process
- 7.2 Readying your starter
- 7.3 Ingredients
- 7.4 Hydration
- 7.5 Autolyse
- 7.6 Fermentolyse
- 7.7 Dough strength
- 7.8 Controlling fermentation
- 7.9 Optional Preshaping
- 7.10 Shaping
- 7.11 Proofing

Non wheat bread basics

- 8.1 Ingredients
- 8.2 Managing acidity
- 8.3 To shape or not to shape
- 8.4 Proofing

Baking

- 9.1 The role of steam
- 9.2 Temperature
- 9.3 Home oven setup
- 9.4 Dutch ovens

Storing bread

- 10.1 Fridge
- 10.2 Room temperature
- 10.3 Frozen

Troubleshooting

| 11.1 | Debugging | your | crumb | structure |
|------|-----------|------|-------|-----------|
| | | | | |

- 11.2 Baking in the tropics
- 11.3 My bread stays flat
- 11.4 I want more tang in my bread
- 11.5 My bread is too sour
- 11.6 Fixing a moldy sourdough starter
- 11.7 My bread flattens out after shaping
- 11.8 Liquid on top of my starter
- 11.9 Why does my starter smell like acetone